AMENDMENTS TO THE CLAIMS

IN THE CLAIMS:

This Listing of Claims will replace all prior versions, and listings, of claims in the subject Patent Application:

Listing of Claims:

1. (Currently amended) A method for computing ~~determining~~ the square root of a long-bit number using a short-bit processor with minimal processing and memory load in a real-time CD/DVD tracking process, comprising the steps of:

(A) representing ~~assuming~~ the long-bit number as a parametric combination of short-bit data components defined by ~~to be~~ $c \times 2^{2K} + d$, where c, $d < 2^{2K}$, and ~~its~~ a square root solution thereof as a parametric combination of short-bit data components defined by ~~to be~~ $(a \times 2^{K} + b)^{2}$;

(B) computing ~~finding~~ 'a' by executing in the short-bit processor ~~using~~ a bisection method to obtain a ~~the~~ floor value for ~~of~~ the square root of 'c' and initializing 'b' to a predetermined initial value;

(C) ~~rearranging and transforming the equations in step (A) to obtain~~ executing in the short-bit processor a digital computation in accordance with a successive substitution condition defined by ~~equation~~: $b_{[n]} = (c-a^{2}) \times 2^{2K} + (d-b_{[n-1]}^{2}) / 2^{2(K+1)}$; and

(D) ~~giving an initial value to 'b'~~ processing a value for 'b' by recursively executing to convergence ~~execute~~ the successive substitution computation of step (C); ~~equation recursively several times until the equation is convergent, thereby finding 'b'~~.

2. (Currently amended) The method as claimed in claim 1, wherein, in step (B), the bisection method is executed by the short-bit processor ~~used~~ to set ~~find~~ a maximum value parameter for ~~of~~ 'a' that satisfies the condition of $a^2 < c$.

3. (Currently amended) The method as claimed in claim 1, wherein, in step (D), the predetermined initial value of 'b' is 0.

4. (Currently amended) The method as claimed in claim 1, wherein, in step (D), the successive substitution computation ~~equation~~ is executed recursively by the short-bit processor at most ~~for~~ three times.

5. (Currently amended) A method for computing ~~determining~~ the square root of a long-bit number using a short-bit processor with minimal processing and memory load in a real-time CD/DVD tracking process, comprising the steps of:

(A) representing ~~assuming~~ the long-bit number as a parametric

combination of short-bit data components defined by ~~to be~~ c x 2^{2K} + d, where c, d < 2^{2K}, and ~~its~~ a square root solution thereof as a parametric combination of short-bit data components defined by ~~to be~~ $(a \times 2^K + b)^2$;

(B) ~~determining the~~ computing a solution responsive to computation of ~~by respectively finding the~~ values for ~~of~~ 'a' and 'b';

(C) computing ~~finding~~ 'a' by ~~taking the~~ processing in the short-bit processor a floor value for ~~of~~ the square root of 'c';

(D) ~~rearranging and transforming the equations in step (A) to obtain~~ executing in the short-bit processor a digital computation in accordance with a successive substitution condition defined by ~~equation~~: $b_{[n]} = (c-a^2) \times 2^{2K} + (d-b_{[n-1]}^2) / 2^{2(K+1)}$; and

(E) ~~giving an initial value to 'b'~~ processing a value for 'b' by recursively executing to convergence ~~execute~~ the successive substitution computation of step (C); ~~equation recursively for several times until the equation is convergent, thereby finding 'b'~~.

6. (Currently amended) The method as claimed in claim 5, wherein, in step (C), ~~the~~ a bisection method is executed by the short-bit processor ~~used~~ to set ~~find~~ a maximum value parameter for ~~of~~ 'a' that satisfies the condition of $a^2 < c$.

7. (Currently amended) The method as claimed in claim 5, wherein, in

step (E), the predetermined initial value of 'b' is 0.

8. (Currently amended) The method as claimed in claim 5, wherein, in step (E), the successive substitution computation ~~equation~~ is executed recursively by the short-bit processor at most ~~for~~ three times.